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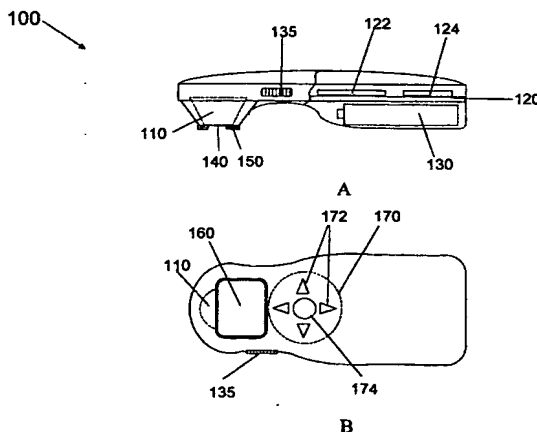
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(54) Title: COMPACT SPECTRAL READERS FOR ACCURATE COLOR DETERMINATION



(57) Abstract: Systems and methods for providing spectral measurements are described. In one embodiment, a spectral measuring device comprises at least one radiation source configured to provide  $N$  ( $N \geq 2$ ) linearly independent illuminant sources characterized by  $M$  ( $M \geq N$ ) wavelength channels in a predetermined wavelength range; a sensor unit including at least one sensor, configured to be in optical communication with the radiation sources and an object; a memory storing an illuminant characterization matrix including spectral characteristics of the  $N$  illuminant sources in the  $M$  wavelength channels; and a processor configured to provide spectral responses of the object in the  $M$  wavelength channels, based at least in part on the illuminant characterization matrix. The embodiments of the invention can be used to construct a new class of compact spectral measuring devices, such as handheld color measuring devices.